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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,025	06/15/2006	Morio Nishigaki	10873.1908USWO	6550
53148 7590 07/09/2009 HAMRE, SCHUMANN, MUELLER & LARSON P.C. P.O. BOX 2902-0902 MINNEAPOLIS, MN 55402				
EXAMINER BRUTUS, JOEL F				
ART UNIT 3768		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,025

Applicant(s)

NISHIGAKI ET AL.

Examiner

JOEL F. BRUTUS

Art Unit

3768

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wendt et al (US Pat: 3,681,977) stand alone and/or in view of Ito et al (Pub. No.: US 2002/0057540).

Regarding claims 1-5, 7-8, Wendt et al teach an ultrasonic system constructed according to the principles of this invention and specifically designed for use as an encephalographic system for investigation of the interior structure of the brain [see column 2 lines 37-43] that is pertinent to the claimed invention. Wendt et al teach a pair of transducer means that are engaged with opposite left and right side portions of the head with at least one of the transducers being energized to transmit pulses into the head and with both being arranged for receiving pulses [see column 1 lines 39-45]. The system has several modes of operation which are controlled by a three gang selector switch 16 and in each mode of operation [see column 2 lines 56-59]. The system has at least two pulsers (left and right). To pulse the transducers, the terminals 41 and 42 are connected to the outputs of left and right pulser circuits (43 and 44) that have one pair of inputs connected through gate circuits 45 and 46 to the output of a gate circuit 47 which is connected to the output of a pulse shaper circuit 48. The input of the shaper

circuit 48 is connected to an output from a horizontal sweep generator circuit having output terminals connected to terminals 51 and 52 of the oscilloscope 18, connected to horizontal deflection plates of the cathode ray tube thereof. In the left, right and through-transmission modes, the gate circuit 47 is enabled and one or the other of the gates 45 or 46 is enabled, to obtain pulsing of the proper transducer [see column 4 lines 8-30].

Positive pulses which are synchronized with the horizontal sweep, are applied from the shaping circuit 48 through capacitors 67-72 to circuit points 73-78 which are connected through diodes 79-84 to input terminals 85-90 of the flip flops 55-57 [see column 4 lines 63-66]. Two transistors are provided having emitters connected to ground and collectors connected to the lines 61 and 62 and also connected through two resistors to a power supply terminal which may be connected to a negative 12 volt supply, for example. The base electrodes of the transistors are connected to the trigger input terminals, respectively, and are also connected through resistors to a power supply terminal which may be connected to a positive 12 volt supply, for example [see fig 2 and column 6 lines 13-32]. The left pulser has an input stage including a pentode 230 having a grounded cathode, and a plate connected through a resistor to a positive power supply terminal which may be at plus 300 volts relative to ground. The plate is connected to subsequent stages of the pulser circuit, operative to apply a high energy pulse to the transducer in response to a positive pulse at the plate of the pentode [see column 10 lines 47-67]. Wendt et al also teach flip flops 56 and 57 that will also be

switched to the proper condition for through-transmission operation when flip flops 55 and 57 are so switched.

Wendt et al doesn't exactly teach the power supply is directly connected to the pulse generators.

However, Wendt et al teach negative or positive power may be applied to at least two pulsers (left and right pulsers which are pulse generators, emphasis added) and [see column 4 lines 8-30]. Wendt et al also teach plurality of power regeneration capacitors and some have larger capacity than others.

However, Ito et al teach a semiconductor switching device that can be replaced with a power regeneration switch that comprises a diode having the same forward direction as the first diode and a switching element connected in parallel thereto [see 0035]. Energy stored into a capacitor through the diode of the power regeneration switch is regenerated to the power source through the switching element of the power regeneration switch [see 0035]; a power source [see 0036]. Ito et al further teach a second capacitor is connected in parallel to at least one non-linear circuit for supplying gate driving voltage [see 0032-0033]; a DC voltage converter is connected to the second capacitor with input terminals thereof and connected to power input terminals of a gate drive circuit with output terminals thereof; voltage of the first and second capacitor is regulated by the DC voltage converter and, then, supplied to the power input terminals of the gate drive circuit [see 0033]. The first capacitor comprises series connected capacitors and each capacitor is connected to the respective non-linear unit in parallel. A DC voltage converter is connected in parallel to one or more capacitors of

lower voltage side with input terminals thereof and connected to power input terminals of a gate drive circuit with output terminals thereof.

Therefore, one with ordinary skill in the art at the time the invention was made would have been motivated to combine the Wendt et al and the Ito et al references; for the purpose of stabilizing or regulating the flow of current, to reduce the possibility of cross talks, thus improving the efficiency of the device. One with ordinary skill in the art would be motivated to use the capacitors in cascade or in parallel; for the purpose of having the same voltage across all the capacitors; and cascade to obtain a total voltage.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wendt et al (US Pat: 3,681,977) in view of Ito et al (Pub. No.: US 2002/0057540) as applied to claim 1 above, and further in view of Niemi (Pub. No.: 2004/0008094).

Regarding claim 6, all other limitations are taught as set forth by the above combination.

The above combination doesn't teach MEMS as a switch. However, Niemi teaches an ultrasonic device with the possibility of using MEMS as switch.

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to combine these references; for the purpose of having the luxury to implement the switch in any small configuration since MEMS is so small; thereby saving space.

Response to Arguments

4. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **JOEL F. BRUTUS** whose telephone number is

(571)270-3847. The examiner can normally be reached on Mon-Fri 7:30 AM to 5:00 PM (Off alternative Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. F. B./
Examiner, Art Unit 3768

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768